



**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**  
**DEPARTMENT OF MICROBIOLOGY**  
**FIRST SEMESTER EXAMINATION, 2017/2018 SESSION**  
**INDUSTRIAL MICROBIOLOGY (MCB 413) 3 UNITS**

**INSTRUCTIONS:** Answer **FIVE Questions** in All; **AT LEAST TWO** from each **Section**.

**Time Allowed: 2 Hours**

**SECTION A**

- 1(a). Define the following: industrial microbiology, fermentation, fermentor, beer, wine and foam in industrial fermentation. 2 marks each ( $2 \times 6 = 12$ ).
- 2(a). Write short notes on the following: 1. Basic function of a fermentor 2. Aeration and agitation in a fermentor. 2.5 marks each ( $2.5 \times 2 = 5$  marks).
- 2(b). List 7 principles for good practice of fermentor. 1 marks each. ( $1 \times 7 = 7$  marks).
- 3(a). What is patent law in industrial microbiology? 2 marks.
- 3(b). Mention briefly 4 major groups of commercially important fermentations. 2.5 marks each ( $2.5 \times 4 = 10$  marks).
- 4(a). What is top fermented beer? (2 marks).
- 4(b). List the steps in beer and wine production (10marks). 1 marks each. ( $1 \times 10 = 10$  marks).

**SECTION B**

- 1(a). Outline the procedures for the isolation of keratinolytic bacteria from a natural environment.
- 1(b). Describe One-Variable-at-a-Time (OVAT) method of fermentation process optimization.
- 2(a). Explain vividly how an industrial microbiologist can maximize its profit through strain improvement.
- 2(b). What are the merits and demerits of hunting natural environments for microorganisms of industrial importance?
- 3(a). Discuss briefly the significance of industrial microbiology in the development of national economy.
- 3(b). Describe how industrial microorganisms can be preserved in the soil.